Division of Life Science

The Hong Kong University of Science & Technology

LIFS2210

Biochemistry I

(*2018/19 Fall Semester*)

Date/Time: 1:30 pm – 2:50 pm, Wednesday and Friday

Venue: Lecture Theater J

Instructor: Prof. Robert Z. Qi (Tel: 2358 7273; E-mail: qirz@ust.hk)

Teaching support: Dr. Eugene Hung (Tel: 2358 7303; E-mail: bohsc@ust.hk)

Course description:

Biochemistry I is a core course designed for undergraduate students majored in life science programs. Biochemistry is the study of the chemical properties and biological functions of the atoms, molecules, macromolecules, and macromolecular complexes that constitute life. Key topics include the building blocks of biomolecules including carbohydrates, membranes, nucleic acids and proteins. Students will learn the structure, function and biosynthesis of DNA, RNA and protein. Students are advised to read ahead before class to familiarize with the large amount of material that will be covered in the lectures.

Course objectives:

On completion of this course, students will be able to:

1. Explain the basic concepts of biochemistry.
2. Recall and design experiments demonstrating the principles of biochemistry.
3. Evaluate the influence of biochemical principles on social and daily life.
4. Appraise the relevance of the biological sciences in preparing for advanced study in biochemistry and related subjects.

Course schedule:

Date	Lecture
05/09	Introduction of Biochemistry I
07/09	Amino Acids
12/09	Protein Structure (I)
14/09	Protein Structure (II)
19/09	Protein Function and Evolution
21/09	Protein Technology

26/09	Enzymes & Enzymatic Reactions
28/09	Enzyme Kinetics (I)
03/10	Enzyme Kinetics (II)
05/10	Enzyme Regulation
10/10	Enzyme Cofactors & Coenzymes
12/10	Review & Tutorial
19/10	Mid-term Examination
24/10	Lipids
26/10	Biomembranes
31/10	Carbohydrates (I)
02/11	Carbohydrates (II)
07/11	Nucleic Acids
09/11	Chromatin Structure
14/11	DNA Replication
16/11	DNA Repair and Recombination
21/11	Transcription and RNA Processing
23/11	Protein Synthesis
28/11	Genetic Engineering
30/11	Course Review & Tutorial
TBA	Final Examination

Textbook: Biochemistry (4th edition)
By C.K. Mathews, K.E. van Holde, D.R. Appling, and S.R. Anthony-Cahill
The Benjamin/Cummings Publishing Company

Reference books: Biochemistry (7th edition)
By Jeremy M. Berg, John L. Tymoczko, and Lubert Stryer

Lehninger Principles of Biochemistry (6th edition)
By David L. Nelson and Michael M. Cox

Exams and Grading: Mid-term examination (50%) and Final Examination (50%)

Course website: CELT (https://canvas.ust.hk) for lecture slides and course materials.